

**Abstract**

It is a composite-type mixed oxygen ion and electronic conductor, in which an oxygen ion conductive phase consists of gadolinium-doped cerium oxide (GDC), an electronic conductive phase consists of spinel-type ferrite (CFO), the particle diameters of both phases are 1  $\mu$  m or less, respectively, both phases are uniformly mixed mutually, and both phases form respective conductive networks. Both phases have low solid solubility mutually, chemical reactions are not easily caused between both phases, and even if chemical reactions are caused between both phases, different phase to disturb mixed conductivity is not formed. And it has high oxygen permeability, and does not easily cause aged deterioration.